



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/634,053	08/08/2000	Timothy M. Schmidl	TI-30586	4790

7590

07/06/2004

Ronald O Neerings
Texas Instruments Incorporated
P O Box 655474 M/S 3999
Dallas, TX 75265

EXAMINER

AHN, SAM K

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/634,053

Applicant(s)

SCHMIDL ET AL.

Examiner

Sam K. Ahn

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on response, received on 4/13/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 12-17 and 19-26 is/are rejected.
- 7) ☒ Claim(s) 6-11 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see p.8-11, filed on 4/13/04, with respect to the rejection(s) of claim(s) 1, 6-11, 13, 15, 16, 18-21 and 23 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Watanabe. Watanabe teaches all limitations of claims which are rejected as below.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitations claimed in claims 6-9 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. It appears that Fig.2 and Fig.3 illustrates the claimed subject matter, however, it does not illustrate all the claimed subject matter. In Fig.3, for example, f7 is used to communicate between the first (S1) and second device (M). Therefore, limitations claimed in claims 7 and 8 must be performed between the two f7's. However, it does not appear to illustrate all the limitations.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled,

the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 1-9, 12, 14-18, 20-22 and 24-26 are objected to because of the following informalities:

In claims 1, 2, 4-9, 12, 14, 15, 16, 17, 18, 20, 21, 24, 25 and 26, lines 10-11, 5, 2, 3, 2, 2, 2, 2, 1, 2-4, 14, 3 and 6, 1, 2, 10, 3 and 8, 1, 1 and 1, respectively, delete "said one transmission" and insert "said one of the plurality of nearest future transmissions".

In claims 2 and 5, lines 3 and 4, 2, delete "including" and insert "includes".

In claim 3, line 1, delete "including" and insert "wherein said providing step further includes".

In claims 6-9, lines 1, respectively, recite "sending a transmission". However, its depending claim already recites "a first transmission", and therefore, suggests replacing the element to "sending a second transmission" for clarity.

In claims 12 and 22, lines 2 and 2, respectively, delete "adjacent" and insert "adjacent to".

In claims 15, 16, 18, 20 and 21, lines 9 and 14, 5 and 6, 4, 11-14, 4 and 7, respectively, delete "the further apparatus" and insert "the further frequency hopping wireless communication apparatus".

In claims 16 and 21, lines 5 and 5, respectively, delete "a transmission" and insert "a second transmission".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 12, 14-17, 20-22 and 24-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe.

Regarding claim 1, Watanabe teaches a method and apparatus of controlling wireless communications between a first and a second frequency hopping wireless communication device. (see Figs.4 and 5) Watanabe further teaches the first device (base station) sending to the second device (mobile station) a first transmission (1st chip of T1) on a first frequency (f3) specified by a frequency hopping pattern (as shown in Fig.5) associated with transmissions by the second

device, said first frequency specified by the frequency hopping pattern for one of a plurality of nearest future transmissions (1-4 chip in T1 and 1-4 chip in T2...) from the second device to the first device, the second device receiving the first transmission and providing communication quality measurement (power level, note col.5, lines 9-15) respectively associated with receipt of the first transmission, and based on the communication quality measurements, the second device sending said one of a plurality of nearest future transmissions (3rd chip of T1) to the first device on the first frequency (f3). (note col.4, line 12 - col.5, line 54)

Regarding claims 12, 17, 22, 25 and 26, Watanabe teaches all subject matter claimed, as applied to claim 1, 15 or 20. Fig.5 further illustrates wherein said one nearest future transmissions (3rd chip of T1) is nearest of said plurality of nearest future transmissions or immediately timewise adjacent to said first transmission (1st chip of T1).

Regarding claim 14, Watanabe teaches all subject matter claimed, as applied to claim 1. As previously explained, Watanabe teaches wherein said sending step includes the second device changing a transmission power level associated with said one of a plurality of nearest future transmissions, based on the communication quality measurements. (note col.5, lines 9-28)

Regarding claims 15 and 20, Watanabe teaches a frequency hopping wireless communication apparatus (see Fig.4), comprising at least one antenna (53) for transmitting and receiving communications via a wireless communication link (coupled to 32 and 52), a wireless communication interface (32, 34, 35, 42, 51 and 52,) coupled to said at least one antenna for sending and receiving from a further frequency hopping wireless communication apparatus via said at least one antenna a first transmission on a first frequency specified by a frequency hopping pattern associated with transmissions by said wireless communication interface, said first frequency specified by the frequency hopping pattern for one of a plurality of nearest future transmissions to the further frequency hopping wireless communication apparatus (refer to claim 1), and said wireless communication interface including a measurement portion (42) for providing communication quality measurements (power level) respectively associated with receipt of said first transmission by said at least one antenna, said wireless communication interface operable in response to receipt of said first transmission and based on said communication quality measurements for sending said one nearest future transmissions to the further frequency hopping wireless communication apparatus via said at least one antenna on said first frequency (refer to claim 1).

Regarding claims 16 and 21, Watanabe teaches all subject matter claimed, as applied to claim 15 or 20. Watanabe further teaches the apparatus (see Fig.4)

Art Unit: 2634

including an indicator (control signal by frequency control circuit, 35) coupled to said wireless communication interface for indicating to said wireless communication interface that, after sending one nearest future transmission, a second frequency is to be used to receive a nearest future transmission from the further apparatus, said second frequency specified by the frequency hopping pattern for a transmission to the further apparatus that is one of a plurality of transmissions to the further apparatus that most closely follow said one nearest future transmission. (note col.6, lines 10-50)

Regarding claim 24, Watanabe teaches all subject matter claimed, as applied to claim 1. As previously explained, Watanabe already teaches wherein said nearest future transmission is the nearest of said plurality of nearest future transmissions. (see Fig.5)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe in view of Hakkinen et al. (Hakkinen, previously cited).

Regarding claim 2, Watanabe teaches all subject matter claimed, as applied to claim 1. Watanabe teaches, as explained above, receiving the first transmission via its antenna and providing communication quality measurements respectively associated with receipt of the first transmission and sending a transmission to the first device on the first frequency. However, Watanabe does not teach using plurality of antennas. Hakkinen teaches, in the same field of endeavor, providing quality measurements (see 41 in Fig.4). Hakkinen further teaches that plurality of antennas may be implemented by placing them physically apart. Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Watanabe's teaching of a single antenna and placing two or more antennas physically apart for the purpose of reducing fading effects, as taught by Hakkinen. (note col.2, lines 56-65)

Regarding claims 3 and 4, Watanabe in view of Hakkinen teach all subject matter claimed, as applied to claim 2. However, Watanabe in view of Hakkinen do not explicitly teach the limitations claimed, the examiner takes Official Notice as calculating weighting coefficients are well-known in the art.

Regarding claim 5, Watanabe in view of Hakkinen teach all subject matter claimed, as applied to claim 2. Hakkinen further teaches selecting on of the antennas based on the communication quality measurements (see Fig.5) where

Art Unit: 2634

the next transmission would implement the antenna with the best quality measurement.

6. Claims 13, 19 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe in view of Callaway, Jr. et al. (Callaway).

Regarding claims 13, 19 and 23, Watanabe teaches all subject matter claimed, as applied to claim 1, 15 or 20. Although Watanabe teaches that the invention is applied to a transmitting and receiving system based on a frequency hopping spread spectrum scheme (note col.1, lines 8-15), Watanabe does not explicitly disclose implementation of the invention in a bluetooth environment. Callaway teaches master and slave devices implemented in a bluetooth environment. (see Fig.1-11) Therefore, it would have been obvious to one skilled in the art at the time of the invention to implement the first and the second devices as slave and/or master devices, as functions of the first and second devices may well be processed in either devices for the purpose of implementing the invention in a short range, such as bluetooth, where power control is required in a mobile communication (note col.1, lines 8-15).

Allowable Subject Matter

7. Claims 6-9 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and overcome the claim objections.
8. Claims 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter:

Present application discloses a method and apparatus operating in a wireless communication environment where plurality of devices transmit and receive signals in a frequency hopping sequence. The received device performs quality measurement on the frequency used by the transmitted device. The received device further comprises plurality of antennas where the device selects an antenna through the quality measurement and further, weighting coefficients are calculated based on the communication quality measurements. Furthermore, Prior arts, Watanabe and Hakkinen teach in the same field of endeavor, disclosing all the elements recited in this instant application. However, Watanabe nor Hakkinen explicitly disclose the limitation wherein the priority or ordering of communication between devices are as claimed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Sam Ahn** whose telephone number is **(703) 305-0754**.

Art Unit: 2634

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450

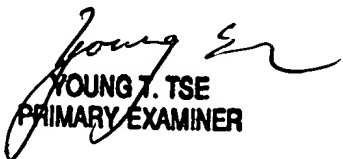
or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Sam K. Ahn
6/26/04


YOUNG T. TSE
PRIMARY EXAMINER